



MacBook Pro 13" Function Keys Late 2016

Battery Replacement

Remove and replace the glued-in, primary battery in your non-Touch Bar MacBook Pro (13-inch, 2016, Two Thunderbolt 3 ports).

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INTRODUCTION

Use this guide to safely remove the glued-in battery from your MacBook Pro with the help of an iFixit battery replacement kit. The adhesive remover in your iFixit kit will dissolve the adhesive securing the battery, allowing you to remove it with ease.

iFixit adhesive remover is highly flammable. Perform this procedure in a well-ventilated area. Do not smoke or work near an open flame during this procedure.

Note: The solvent used to dissolve the battery adhesive will damage certain plastics. Follow all instructions and take care where you apply the adhesive remover.



TOOLS:

- [P5 Pentalobe Screwdriver Retina MacBook Pro and Air](#) (1)
 - [Suction Handle](#) (1)
 - [iFixit Opening Picks set of 6](#) (1)
 - [Tweezers](#) (1)
 - [T6 Torx Screwdriver](#) (1)
 - [Spudger](#) (1)
 - [T5 Torx Screwdriver](#) (1)
 - [iOpener](#) (1)
 - [Plastic Cards](#) (1)
 - [Safety Glasses](#) (1)
 - [Disposable gloves](#) (1)
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Step 1 — Lower Case



⚠ Before disassembling your MacBook Pro, discharge the battery below 25%. A charged lithium-ion battery can catch fire and/or explode if accidentally punctured.

- Power down and unplug your MacBook Pro before you proceed.
- Use a P5 Pentalobe driver to remove the six screws securing the lower case:
 - Two 6.2 mm screws
 - Two 5.3 mm screws
 - Two 3.4 mm screws

Step 2



- Apply a suction handle to the lower case near the front-center area of the MacBook Pro.
- Lift the suction handle to create a slight separation between the lower case and the chassis.

Step 3



- Insert one corner of an opening pick into the space between the lower case and the chassis.
- Slide the opening pick around the nearest corner and halfway up the side of the case.
- ⓘ This releases the first of the hidden clips securing the lower case to the chassis. You should feel and hear the clip pop free.

Step 4



- Repeat the previous step on the opposite side, sliding your opening pick under the lower case and up the side to pop the second clip free.

Step 5



- Insert your opening pick once again under the front edge of the lower case, near one of the two centermost screw holes.
- Give the pick a firm twist to pop free the third clip securing the lower case to the chassis.
- Repeat this procedure near the other of the two centermost screw holes, popping the fourth clip free.

Step 6



- Pull the lower case firmly towards the front of the MacBook (away from the hinge area) to separate the last of the clips securing the lower case.
- ❗ It may help to pull first at one corner, then the other.

Step 7



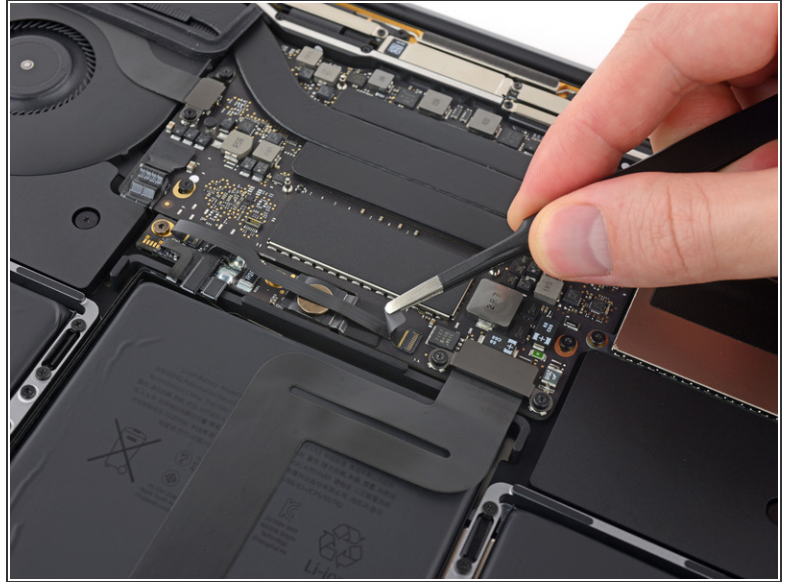
- Remove the lower case.

Step 8 — Battery Connector



- Carefully peel up the large piece of tape covering the battery connector, on the edge of the logic board nearest the battery.
- Remove the tape.

Step 9



- Gently peel back the small piece of tape covering the battery board data cable connector.
 - ❗ The tape is integrated into the ribbon cable and will not detach completely. Simply peel it back enough to access the connector.

Step 10



- Use the tip of a spudger to flip up the small black locking tab securing the cable in its connector.

Step 11



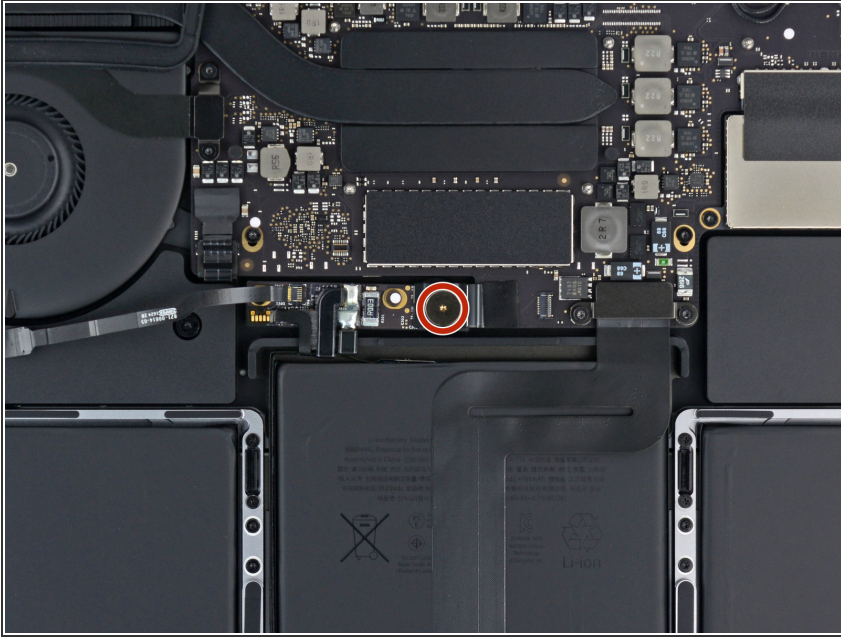
- Disconnect the battery board data cable by sliding it out from its socket.
- Slide parallel to the logic board, in the direction of the cable.

Step 12



- Fold the battery board data cable back and out of the way.

Step 13



- Use a T6 Torx driver to remove the 3.7 mm pancake screw securing the battery power connector.

Step 14



- Use a spudger to gently lift the battery power connector, disconnecting the battery.
- Lift the connector high enough so that it stays separated from its socket. If it accidentally makes contact during the course of your repair, it could damage your MacBook Pro.

Step 15 — Trackpad



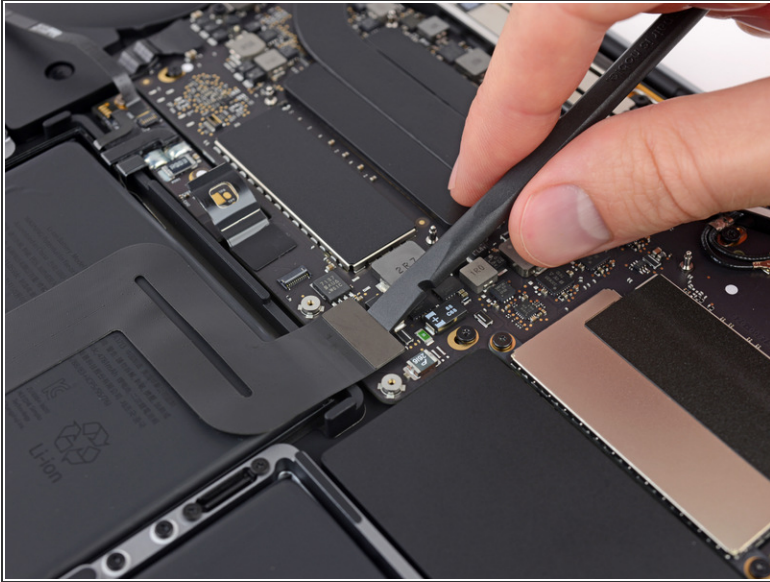
- Use a T5 Torx driver to remove the two 2.1 mm screws securing the trackpad cable connector bracket.

Step 16



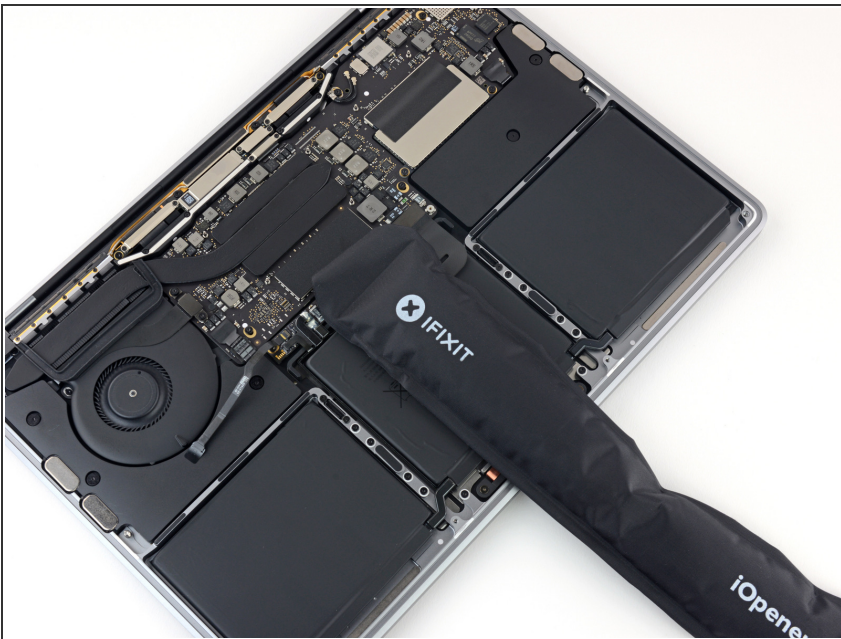
- Remove the trackpad cable connector bracket.

Step 17



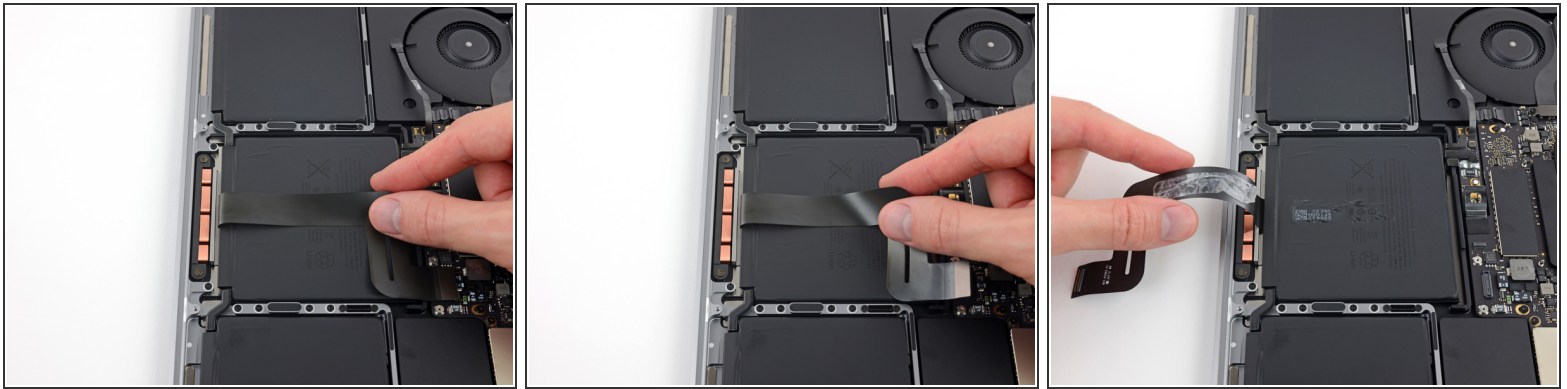
- Use a spudger to disconnect the trackpad ribbon cable by gently prying its connector straight up from the logic board.

Step 18




- [Prepare an iOpener](#) and lay it on top of the trackpad ribbon cable.
- If you don't have an iOpener, use a hair dryer to warm up the cable instead. The cable should be warm, but not too hot to touch.
- Apply heat for approximately one minute in order to soften the adhesive securing the trackpad ribbon cable to the battery.

Step 19



- Carefully peel the trackpad ribbon cable up off the battery, and push it out of the way.

 Do not fold or tear the cable.

Step 20



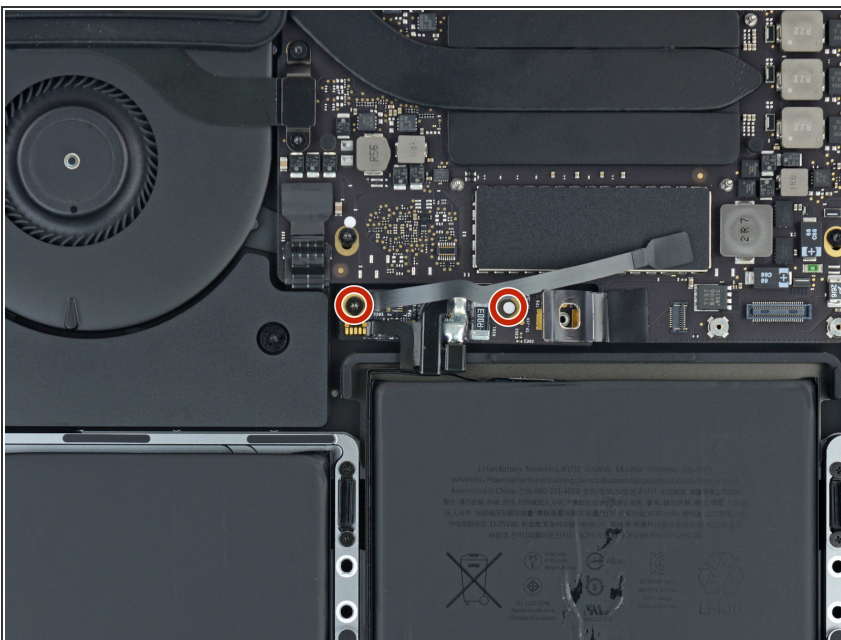
- Use a T5 Torx driver to remove the ten screws securing the trackpad assembly:
 - Two 4.3 mm screws
 - Eight 5.8 mm screws

Step 21



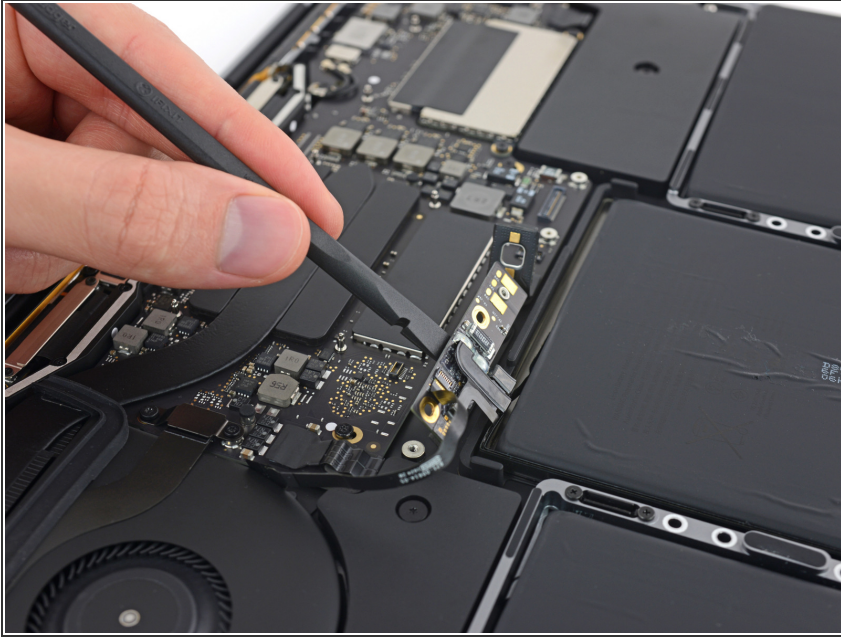
- Remove the trackpad assembly.
- ⓘ You'll need to swing the display open slightly to remove the trackpad.
- ⚠ Take care to feed the trackpad ribbon cable through the MacBook Pro's frame without snagging.
- Be sure not to lose the six small washers (two circular and four rectangular) resting on the underside of the trackpad.

Step 22 — Battery



- Use a T5 Torx driver to remove the two 3.1 mm screws securing the battery board.
- ⓘ These screws lie under the battery board data cable. You may need to gently maneuver the cable from side to side to access each screw.
- ⓘ The rightmost screw may have a water damage indicator sticker on the top. If so, remove it with a pair of tweezers and set it aside before removing the screw.

Step 23



i The battery board is permanently attached to the battery. Check to make sure it has adequate clearance to come out together with the battery, without snagging on other components.

- Insert the flat edge of a spudger under the battery board on the side nearest the logic board.
- Lift the battery board to an angle of about 45 degrees. If necessary, lift the battery power connector out of the way to give the battery board extra clearance.

Step 24




- i** The liquid adhesive remover provided in your kit can affect the antireflective coating on your MacBook Pro's display.
- To protect your display, place a sheet of aluminum foil between the display and keyboard and leave it there while you work.
 - Additionally, layer an absorbent towel directly underneath the trackpad area to soak up any excess adhesive remover.

Step 25



- Now that your MacBook Pro is fully prepped, it's time to prep yourself.

 iFixit adhesive remover contains acetone, a mild skin and eye irritant.

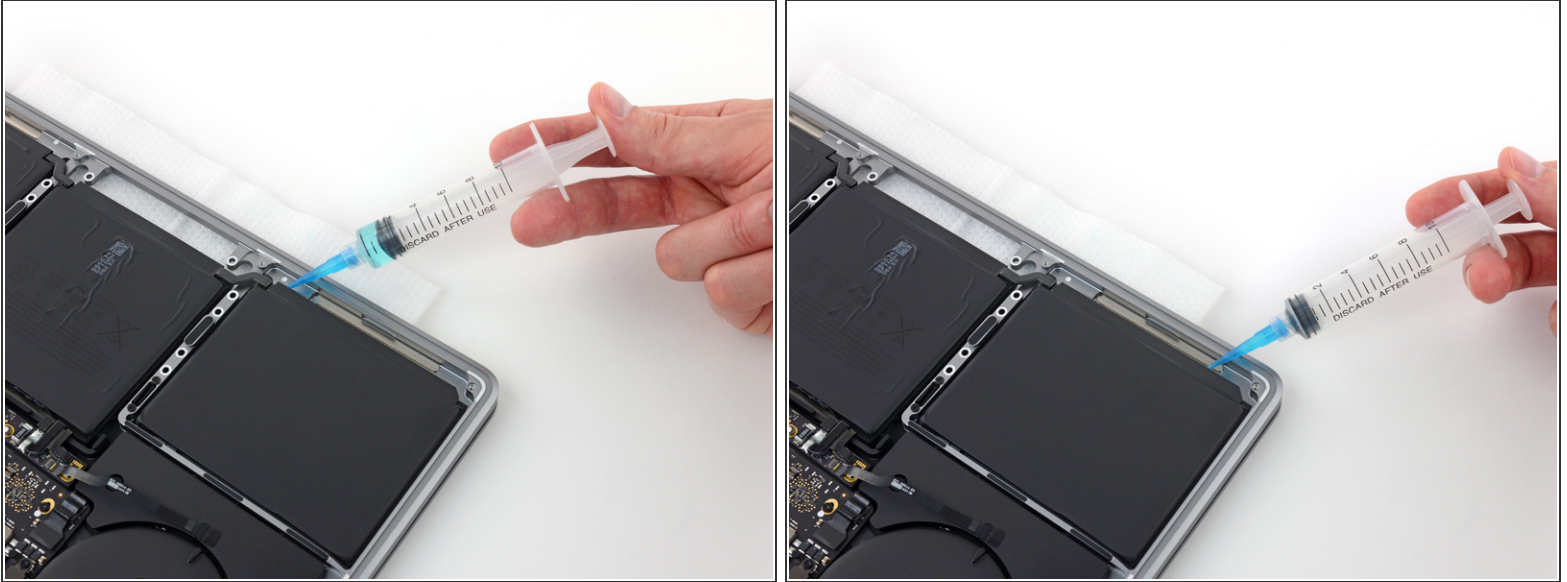
- Wear eye protection when handling and applying the adhesive remover. (Eye protection is included in your kit.)
- **Do not** wear contact lenses without eye protection.
- Protective gloves are also included in your kit. If you are concerned about possible skin irritation, put your gloves on now.

Step 26



- Open your container of adhesive remover.
- Fill the syringe included in your kit with a small amount (approximately 2 milliliters) of adhesive remover.
 - Refill your syringe as needed throughout the rest of this procedure.
- ❗ It's best to fill the syringe with no more than about 2 milliliters of adhesive remover at a time, so as to avoid accidentally applying too much.

Step 27



- Apply a small amount of adhesive remover (approximately 1-2 ml) underneath the front edge of the battery cell that lies nearest the fan.

Step 28



- Tip the front edge of your MacBook Pro up at a slight angle so that the liquid adhesive remover flows underneath the battery cell.
- Wait 2-3 minutes before you proceed to the next step, in order to give the adhesive remover time to work.

Step 29



- After 2-3 minutes have passed, slide a plastic card under the edge of the battery cell where you applied the adhesive remover.
 - ⓘ It may help to gently twist the card to open up a slight gap between the battery cell and the MacBook Pro's case.

Step 30



- Gently work the card deeper under the battery cell to break up the adhesive securing it in place.
 - ⚠ This should not require much force—the adhesive remover does most of the work. If you aren't able to get your card under the battery cell, apply a bit more adhesive remover as instructed above and wait 2-3 minutes before trying again.

Step 31



- Twist the card to raise the battery cell until it fully separates from the aluminum case.

⚠ Don't try to remove the battery cell completely just yet—it's still attached to the remaining cells.

Step 32



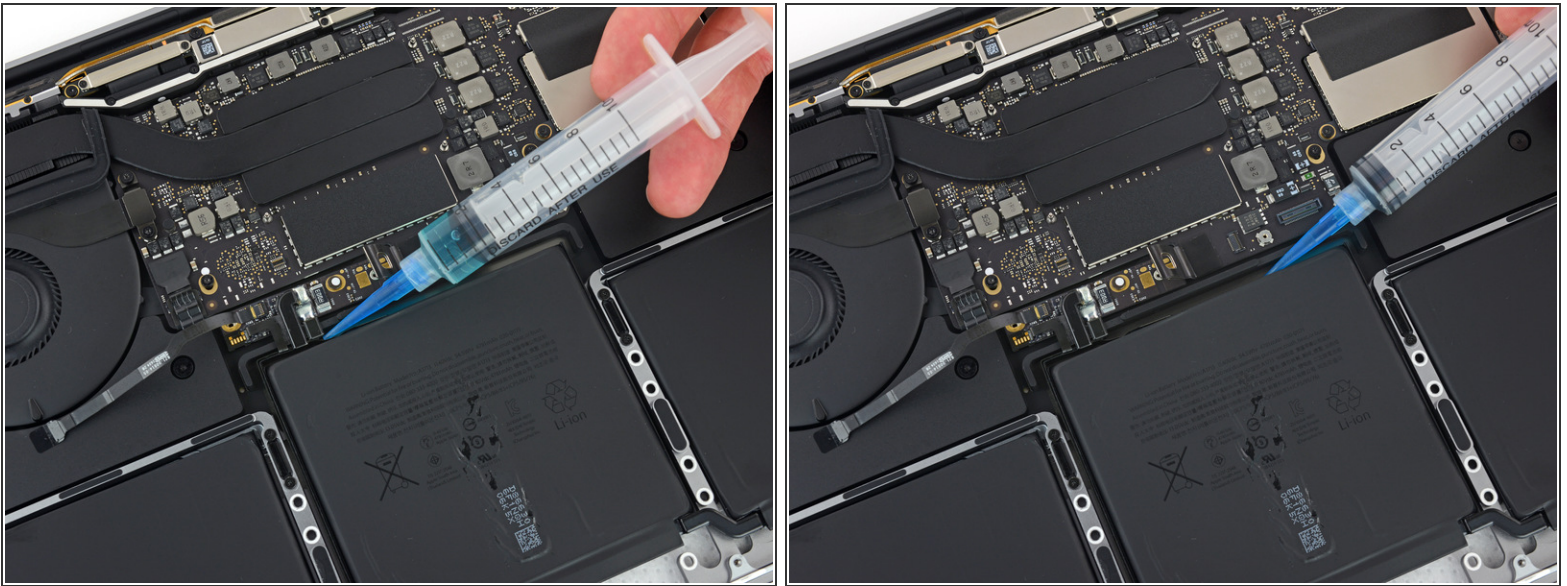
- Leave the plastic card temporarily in place underneath the battery cell.
 - ⓘ This prevents the cell from re-adhering to the case while you work on separating the remaining cells.

Step 33



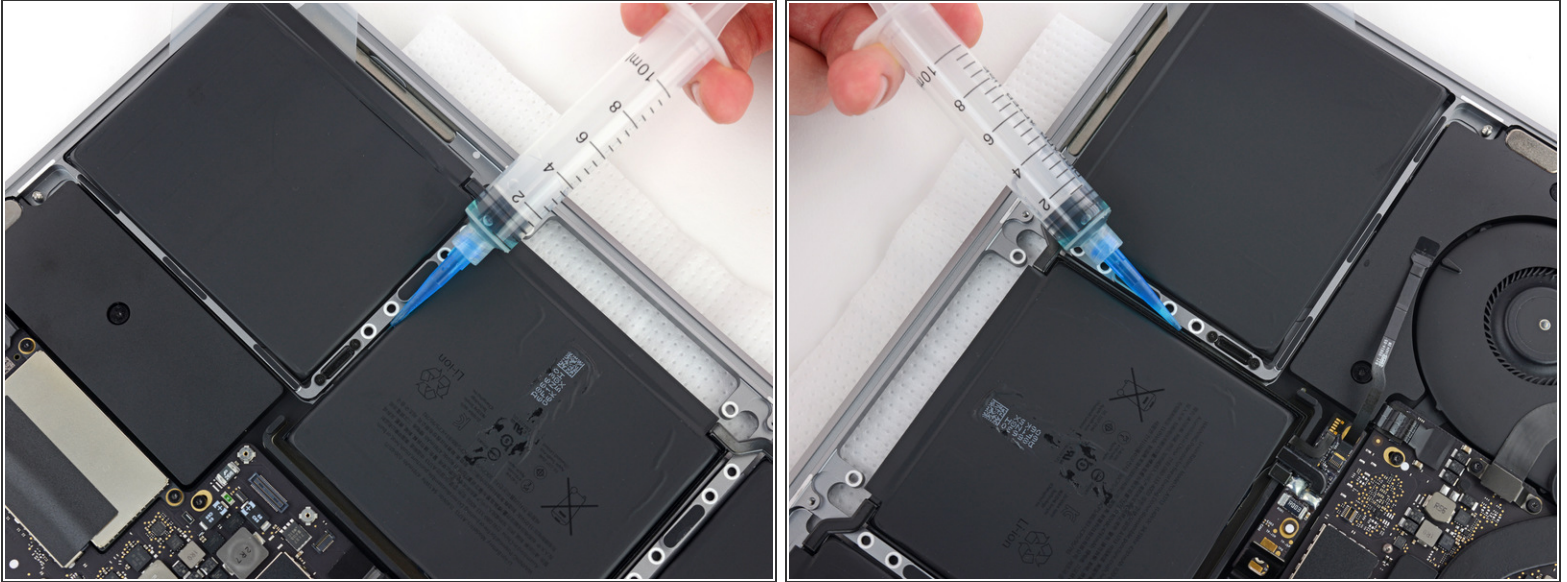
- Repeat the previous six steps to separate the other outer battery cell, on the opposite side.

Step 34



- To separate the center battery cell, first tip the MacBook Pro forward so that the adhesive remover will flow away from the logic board.
- Apply a small amount (about 1 ml) of adhesive remover along the back edge of the battery cell.

Step 35



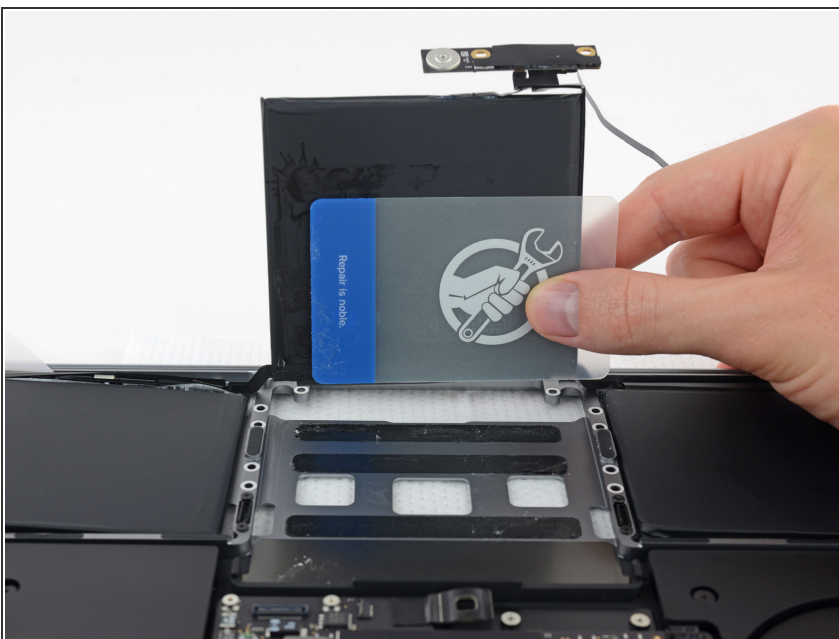
- i** [Cutouts in the aluminum case](#) between the center battery cell and trackpad may prevent the adhesive remover from flowing all the way underneath the battery.
- To compensate, apply a small amount (about 1 ml) of adhesive remover along each side of the center battery cell.
 - Wait 2-3 minutes before proceeding to the next step.

Step 36



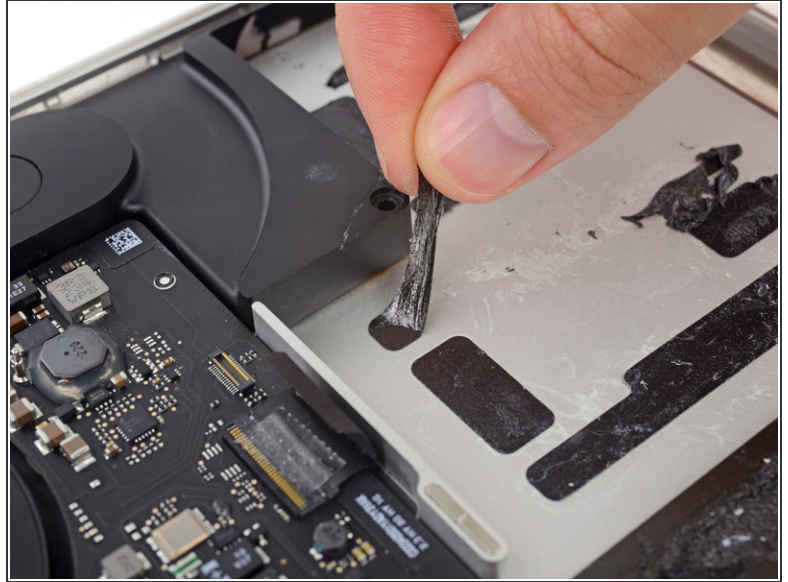
- Slide a plastic card under one of the side edges of the center battery cell.
 - ⚠ Try to keep your card well clear of the logic board.
- It may help to gently twist the card to open up a slight gap between the battery cell and the MacBook Pro's case.

Step 37



- Use the card to lift the battery cell until it fully separates from the aluminum case.

Step 38



- Lift and remove the battery.
- ✦ Before installing your new battery, remove all the old adhesive from the MacBook Pro's case.
 - With a little luck, you can slowly pull out each strip of adhesive with your fingers.
 - Otherwise, soak each strip of adhesive with a bit of adhesive remover for 2-3 minutes, and then scrape it out with a plastic tool. This can take quite a bit of work, so be patient.
 - Mop up any remaining adhesive remover and give your MacBook Pro a few minutes to air dry.
- ✦ The replacement battery included in your iFixit kit comes with adhesive pre-installed. Test the battery's fit and alignment carefully before peeling off the film covering the adhesive, and then press each cell firmly into place. If any additional films/liners are present that weren't on your original battery, remove them now.
- Calibrate your battery before using it: allow it to drain overnight, then charge it to 100% and drain it again until your MacBook Pro shuts down automatically. Charge it again and use it normally.
- ⚠ If you notice any unusual behavior or problems after installing your new battery, you may need to [reset your MacBook Pro's SMC](#).

To reassemble your device, follow these instructions in reverse order.

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